

USSR

MART'YANOV, V. A., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 9, 1972, pp 1,390-1,396

certain procedural conditions resulted in an increase in the force of the voluntary contraction to the evoked level. Electrical stimulation does not lead to an increase in the voluntary contraction force in the absence of a neuro-muscular block judging from the H-responses. This indicates complete activation of the muscular system. The optimal frequency of electrical stimulation to cause the greatest evoked contraction force was determined leading to the use of square pulses with a frequency of  $50 \text{ sec}^{-1}$  for the experiments.

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USSR

UDC 535.8:666.189.2

DOVGIIY, YA. O., BILYY, YA. M., BRILINSKIY, M. I., GNYP, R. G., DMYTRUK, V. I.,  
SIMKIN, YU. YE.

"Effect of Fiberglass on the Contrast-Frequency Characteristics of Optical Systems"

Leningrad, Optika i Spektroskopiya, Vol XXXIV, No 4, 1973, pp 789-791

Abstract: The quality of the image formed by an optical system is determined by its contrast-frequency characteristic or the contrast transmission function  $T(N)$ . If during transformation of the optical signals their relative intensity (contrast) does not change it is possible to write the equation [F. Perren, Usp. Fiz. Nauk, No 78, 307, 1962]:

$$T_{\text{syst.}}(N) = \prod_i T_i(N)$$

( $T_i(N)$  is the contrast-frequency characteristic of the  $i$ -th element of the system,  $N$  is the spatial frequency). A study was made to determine how fiberglass affects the contrast-frequency characteristic of the system. The fiberglass introduces a contrast distortion and violates the above relation. The degree of the distortions depends on the relations of the fiberglass apertures and the other system elements. The conditions most acceptable for measuring the contrast-frequency characteristics of the fiberglass are as follows:  
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DOVGIIY, YA. O., et al., Optika i Spektroskopiya Vol XXXIV, No 4, 1973, pp 789-791

illumination by a collimated beam of uniform cross section using any receiving objective or diffuse illumination jointly with a narrow-aperture objective ( $A_{ob} \leq A_{\text{fiberglass}}$ ).

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3

USSR

UDC 666.189.212:535.818.7

DOVGIIY, YA.O., BILYY, YA.M., BRILINSKIY, M.I., GNYP, R.G., <sup>Dmitryuk</sup> ~~Platonov~~, V.P.,  
SIMKIN, YU.YE., STEFANSKIY, I.V. [L'vov State University imeni Ivan Franko]

"Frequency-Contrast Characteristics And Noise Of Fiber Optic Cathodoluminescence Screens"

Tekhnika kino i televideniya, No 4, Apr 1972, pp 54-55

Abstract: Measurements were made of the frequency-contrast characteristics (FCC) and noise of fiber optic cathodoluminescence screens during their excitation by a static electron beam. The measurements were made by methods developed for measuring the FCC and noise of cathodoluminescence screens with a glass substrate. The principal scheme of the device used for measuring FCC is described and a comparison is made of FCC measured by the micrometric method and with electron excitation. The additive contribution of the glass fiber substrate to the noise characteristics of the screen is shown. 3 ill. 4 ref.

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- 210 -

1/2 010  
UNCLASSIFIED  
TITLE--A STUDY ON NUCLEAR MATERIAL FROM THE CELLS OF AZOTOBACTER  
VINELANDII -U-  
AUTHOR--(03)-SHANINA, N.A., KOLESNIKOV, A.A., GNZAYSEVA, G.N.  
COUNTRY OF INFO--USSR  
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 60-66  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RNA, DNA, PROTEIN, LIPID, RIBOSOME, FUNGUS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1990/1411  
STEP NO--UR/0220/70/039/001/0060/0066  
CIRC ACCESSION NO--AP0109473  
UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0109473

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NUCLEAR SUBSTANCE WAS ISOLATED FROM THE CELLS OF A. VINELANDII BY FRACTIONATION AND SOME BIOCHEMICAL PROPERTIES OF ITS COMPONENTS WERE STUDIED. AFTER REMOVAL OF FREE RIBOSOMES NUCLEAR MATERIAL CONTAINED RNA AND DNA (2.2 IS TO 1). FURTHER REMOVAL OF BOUND RIBOSOMES FROM NUCLEAR MATERIAL BY ISOCTANE RESULTED IN A DECREASE OF THE RNA IS TO DNA RATIO (0.8 IS TO 1). THE CONTENT OF LIPIDS AND PROTEIN WAS HIGH IN NUCLEAR MATERIAL OF A. VINELANDII. A STUDY OF NUCLEAR MATERIAL BY A TECHNIQUE OF DENSITY GRADIENT EQUILIBRIUM SEDIMENTATION ESTABLISHED IN A SUCROSE SOLUTION REVEALED FOLLOWING COMPONENTS: DNA, RNA, 74S NUCLEAR RIBOSOMES AND THEIR SUBUNITS AS WELL AS A COMPLEX, CONTAINING DNA, RNA, PROTEIN AND, PROBABLY, LIPIDS. NUCLEOTIDE COMPOSITION OF THE RNA FRACTION WAS STUDIED AFTER COMPLETE REMOVAL OF RIBOSOMES (BOTH FREE AND BOUND) FROM NUCLEAR MATERIAL. NUCLEOTIDE COMPOSITION OF THIS RNA FRACTION CONSIDERABLY DIFFERED FROM THAT OF DNA, RIBOSOMAL RNA AND TRANSFER RNA OF THE CULTURE.

UNCLASSIFIED

USSR

UDC 621.372.825.004.14

SOKOLOV, Ye. A., BENDERSKIY, V. A., GOBEDZHITVILI, V. D., and MIKHIN, V. I.

"Use of Flat Radial Spirals in Electron Paramagnetic Resonance Technology"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1432-1436

Abstract: The authors analyze the sensitivity and bandwidth of flat arithmetical and logarithmic spirals used as pickups in electron paramagnetic resonance spectroscopy. It is shown that arithmetical spirals can be used to achieve high SHF magnetic field strength in a thin specimen (approximately  $1 \text{ oersted}/\sqrt{Wl/2}$ ) and that they have a sensitivity comparable to that of a cavity resonator in a passband of 1000 MHz. It is concluded that flat spirals can be successfully used in double electron-electron resonance technology and pulse measurements of spin relaxation in the study of specimens excited by strongly absorbed radiation. The radial spirals can be used as EPR signal pickups for flat specimens with a thickness of the order of 0.1 mm and volumes of less than 8 mm<sup>3</sup> (or 16 mm<sup>3</sup> in the case of bilateral arrangement of the specimen). In the case of ideal matching, the sensitivity of the spiral should be 5-10 times that of a resonator. The considerable bandwidth of a radial spiral makes it useful as an EPR pickup, and the small dimensions are very convenient for measurements at very low temperatures. In conclusion, the authors thank V. P. Sazonov for discussion and constructive criticism.

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1/2 021  
UNCLASSIFIED  
TITLE--THE SURGICAL TREATMENT OF CHRONIC HYPERTROPHIC RHINITIS IN THE  
PRESENCE OR ABSENCE OF ALLERGY -U-  
AUTHOR--GOBEYEV, A.B.  
COUNTRY OF INFO--USSR  
SOURCE--VESTNIK OTORINOLARINGOLOGII, 1970, NR 1, PP 36-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, SURGERY, EAR  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1980/0800  
CIRC ACCESSION NO--AP0049023  
STEP NO--UR/0607/70/000/001/0036/0040  
UNCLASSIFIED



2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0049023

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER OBSERVATION WERE 120 PATIENTS WITH HYPERTROPHIC RHINITIS, IN 46 OF WHOM A MARKED ALLERGY WAS ESTABLISHED WITH THE AID OF A COMPLEX ALLERGOLOGICAL INVESTIGATION, IN 33, A CERTAIN ALLERGIC BACKGROUND AND IN 41, NO ALLERGY. THE AUTHOR STUDIED THE EFFECTIVENESS OF THE SURGICAL TREATMENT OF HYPERTROPHIC RHINITIS IN THE PRESENCE AND ABSENCE OF ALLERGY. ALL THE PATIENTS WERE SUBJECTED TO INFERIOR CONCHOTOMY, WHICH IN 118 CASES WAS BILATERAL AND IN 2 UNILATERAL. IN 117 PATIENTS GOOD IMMEDIATE RESULTS WERE OBTAINED: OF THIS NUMBER IN 43 WITH MARKED ALLERGY, IN 33, WITH A CERTAIN ALLERGIC BACKGROUND AND IN 41, WITHOUT ALLERGY. THE REMOTE RESULTS (FROM 10 TO 20 MONTHS) WERE STUDIED IN 90 CASES. CLINICAL RECOVERY AND SIGNIFICANT IMPROVEMENT WERE NOTED IN 74 CASES: IN 22 WITH MARKED ALLERGY (OUT OF 33), IN 29 WITHOUT ALLERGY (OUT OF 33) AND IN 14, WITH A CERTAIN ALLERGIC BACKGROUND (OUT OF 24). AN IMPROVEMENT WAS OBSERVED IN 11, CORRESPONDINGLY IN 8, 3, AND NO EFFECT IN 5, RESPECTIVELY 3, 1, 1. NOT IN A SINGLE INSTANCE THE AUTHOR OBSERVED COMPLICATIONS OF THE NATURE OF BRONCHIAL ASTHMA, DETERIORATION OF THE STATE AND MANIFESTATIONS OF ATROPHY OF THE NASAL MUCOUS MEMBRANE, AS IS FEARED BY MANY SURGEONS AFTER CONCHOTOMY. ON THE BASIS OF THE RESULTS OBTAINED THE AUTHOR CONCLUDES THAT SURGICAL TREATMENT OF HYPERTROPHIC RHINITIS IN THE PRESENCE AND ABSENCE OF ALLERGY IS ONE OF THE MOST EFFECTIVE MODES OF THERAPY AND MAY BE USED WIDELY. HOWEVER, ONE SHOULD BEAR IN MIND THAT CONCHOTOMY DOES NOT CURE ALLERGY IN GENERAL, THE LATTER SHOULD BE SUBJECT TO SPECIAL TREATMENT.

UNCLASSIFIED

Aluminum and Its Alloys

USSR

UDC 669.71.018.9

VILSON, D., KHUR, P., GOBL, M.

"Electric-Slag Remelting of Aluminum-Magnesium Alloys"

Elektroshlak. Pereplav [Electric-Slag Remelting -- Collection of Works],  
Moscow, Metallurgiya Press, 1971, p 253-261. (Translated from Referativnyy  
Zhurnal Metallurgiya, No 3, 1972, Abstract No 3G139 by the authors).

Translation: Results are presented from laboratory experiments on electric-  
slag remelting using direct current of different polarities. Various slag  
systems are studied, including the fluorides of K, Ce, Li, Rb, Na, B, etc.  
3 figs; 1 table; 3 biblio refs.

USSR

UDC 669.259-04

DEGTYAREV, V. S., DENISOV, S. I., DENISOVA, N. V., KIPRICH, N. A., and  
GOBOV, A. P.

"On Controlling the Process of Smelting Titanium Slags by Change in  
Electric Conductivity"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya  
Publishing House, Vol 6, 1970, pp 27-29

Translation: Results are given of an investigation of the electrical resistance of pulverized titanium slags at a temperature of 25°C. It is established that, with a change in the ferrous oxide content from 15.49 to 2.5%, the specific resistance of the titanium slag with a coarseness of -0.1 millimeters decreased from  $3.08 \cdot 10^{-5}$  to  $1.41 \cdot 10^{-3}$  ohms/cm, i.e., by a factor of 218. In the authors' opinion, control over reduction electro-smelting of titanium concentrates, which consists of determining ferrous oxide during the course of the process, can be exerted by establishing the electrical resistance of the slags. Two illustrations, one table, and three bibliographic entries.

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USSR

GOBOV, G. V., TAMBOVTSEV, V. S.

"Effect of Concentration and Conditions of Crystallization on the Absorption and Luminescence Spectra of Frozen n-Parafin Solutions of Diphenylene Sulfide"

Minsk, Zhurnal Prikladnoy Spektroskopii, September 1970, pp 425-430

Abstract: The variation in the spectra of diphenylene sulfide in frozen n-parafin solutions (77°K) with variations of the concentrations and freezing rate is studied. The range of concentrations for phosphorescence is wider than for fluorescence and absorption in all the solvents, which fact is related to a smaller perturbation of the medium of the triplet level than of the excited singlet level. A decrease in the freezing rate leads to a significant narrowing of the range of concentrations in which quasi-bright-line spectra are observed. The nature of the variation of the spectra with a variation in the concentration of the solutions testifies to the validity of the hypothesis of different centers responsible for each spectral series.

There are two illustrations and four bibliographic references.  
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USSR

UDC 577.4

GOBZEMIS, A. YU.

"Synthesis of Asynchronous Finite Automata on the Basis of a Model with Logical Feedback"

V sb. Vopr. sinteza konechn. avtomatov (Problems of Synthesizing Finite Automata -- collection of works), Riga, Zinatne Press, 1972, pp 3-8 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V408)

No abstract

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USSR

UDC 620.193.41

TUSOV, G. P., GOCHALIYEVA, YE. P. and FANDEYEVA, M. F., Scientific Research  
Physicochemical Institute imeni L. Ya. Karpov

"Cathodic Behavior of Titanium in Acid Solutions"

Moscow, Zashchita Metallov, Vol 10, No 1, Jan-Feb 74, pp 41-44

Abstract: The authors studied the cathodic passivation of VT-1 titanium in 3n H<sub>2</sub>SO<sub>4</sub>. In the anodic area, the passivity of titanium is related to the formation of passivating oxide films, while in the cathodic area the form of oxygen passivation is different. Apparently, the reaction of dissolution of titanium in the cathodic area is passivated by surface oxygen compounds, the degree of oxidation of the surface changing in equilibrium upon transition from one potential to another. The experimental material presented speaks in favor of the explanation of the cathodic passivity of titanium by the oxide film and allows the degree of passivity to be preliminarily related to the percentage of filling of the surface with electrochemically active oxygen compounds.

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USSR

UDC 621.396.2.0.29.7:621.391.822

GOCHELASHVILI, K.S.

"On The Problem Of Noise In Laser Communication Lines"

Radiotekhnika i elektronika, Vol XVII, No 5, May 72, pp 1093-1095

Abstract: In connection with long-distance laser communication lines, a video system with direct reception is compared with a superheterodyne system. It is found that with receiver aperture diameters  $D > 2.3 r_0$  the magnitude  $R > 1$  [ $R = S/N_{\text{super}} / S/N_d$ ], and the system with direct reception is preferable to the system with superheterodyne reception. The author thanks F.V. Bunkin for helpful discussion of the results of the work. 1 fig. 7 ref. Received by editors, 1 April 1971.

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1/2 010 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--POTASSIUM OXIDE AND BORON OXIDE AND POTASSIUM CHLORIDE AND WATER  
SYSTEM AT 25PERCENT -U-  
AUTHOR--(02)-KUKA, P., GODE, H. 6

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KIM. SER. 1970, (1), 23-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AQUEOUS SOLUTION, POTASSIUM CHLORIDE, BORATE, POTASSIUM OXIDE,  
BORON OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1988/0612

STEP NO--UR/0464/70/000/001/0023/0025

CIRC ACCESSION NO--AP0105595

UNCLASSIFIED



2/2 010

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105595

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF K BORATE IN SOLNS. CONTG. 10 AND 20PERCENT KCL AND IN SATD. KCL SOLNS. WAS STUDIED AT 25PERCENT. IN SATD. KCL SOLNS. WHEN THE K SUB2 O CONTENT WAS 0.024PERCENT K DECABORATE APPEARED IN THE SOLID PHASE. AT THIS POINT, THE B SUB2 O SUB3 :K SUB2 O RATIO WAS 144. AS THIS RATIO DECREASED, THE SOLY. OF THE DECABORATE 1ST DECREASED AND THEN INCREASED. THE SOLY. OF THE TETRABORATE PASSED THROUGH A MIN. AFTER WHICH IT INCREASED SHARPLY AND ATTAINED A POINT OF SIMULTANEOUS CRYSTN. OF THE TETRA AND THE DIBORATES. IN 10 AND 20PERCENT KCL SOLNS., THE SOLY. ISOTHERMS RAN PARALLEL BETWEEN THE ISOTHERMS FOR THE SOLNS. WITHOUT KCL AND THE KCL SATD. SOLNS. THE SOLY. MIN. OF DECA AND TETRABORATES WERE RETAINED. THE SOLY. OF KCL DECREASED AS THE K SUB2 O CONTENT INCREASED, AND THUS, IN THE 10PERCENT KCL SOLN. THE ISOTHERM TERMINATED AT A K SUB2 O CONTENT OF 16.60PERCENT, AND FOR THE 20PERCENT KCL SOLN. THE ISOTHERM TERMINATED AT A K SUB2 O CONTENT OF 6.40PERCENT. AT THESE POINTS THE ISOTHERMS MERGED WITH THE ISOTHERMS OF A KCL SATD. SOLN.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--SOLUBILITY OF BORAX IN SODIUM CHLORIDE SOLUTIONS AT 25DEGREES -U-  
AUTHOR--(02)-GODE, H., KLAVINA, L.  
COUNTRY OF INFO--USSR  
SOURCE--LATV. PSR ZINAT. AKAD. VESTIS, KHIM. SER. 1970, (1) 116-17  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--SODIUM CHLORIDE, AQUEOUS SOLUTION, SOLUBILITY, BORON COMPOUND  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FAME--1988/0601 STEP NO--UR/0464/70/000/001/0116/0117  
CIRC ACCESSION NO--AP0105584  
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105584

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF NA SUB2 B SUB4 O SUB7  
WAS 2.90PERCENT IN A SOLN. CONTG. NO NACL. IN A SOLN. CONTG.  
26.46PERCENT NACL THE SOLY. OF NA SUB2 B SUB4 O SUB7 WAS NIL. BETWEEN  
THESE 2 LIMITS, THE PH WENT FROM 9.26 TO 6.70, AND THE N OF THE LIQ.  
PHASE WENT FROM 1.3388 TO 1.3790.

UNCLASSIFIED

USSR

UDC 621.375.82

GODENKO, L. P. and MASHKEVICH, V. S., Institute of Physics, Academy of Sciences, Ukrainian SSR, Kiev

"Laser Generation Theory for a Nonuniformly Broadened Asymmetric Luminescence Line"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 16, No 8, Aug 71, pp 1257-1266

Abstract: One of the most important areas in laser physics is the study of generation in spectrally nonuniform systems. The authors had previously studied a model where the amplification was a symmetric function of frequency and where naturally the spectrum of the generation was also symmetric. Taking advantage of a later investigation the authors; in this article, develop a theory of generation wherein they are not confined to this symmetric generation but are able to explore the possibilities of asymmetric amplification. They describe the system involved and discuss the method used to solve it, employing equations as graphic substantiation. They then describe the sources of asymmetry and weak generation with an even distribution of centers, as well as an asymmetric Lorentz line of the center. In discussing the generation spectrum, they mention single-line and double-line generation as well as the onset of triple-line generation. Finally the authors define the parameters

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GODENKO, L. P. and MASHKEVICH, V. S., Ukrainskiy Fizicheskiy Zhurnal, Vol 16,  
No 8, Aug 71, pp 1257-1266

and discuss the means of determining them for the asymmetric case. The  
article contains 1 figure and 5 bibliographic entries.

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USSR

UDC 521.375.82

GODENKO, L. P., and MASHKEVICH, V. S.

"Form of Amplification Curve in Systems With Unevenly Expanded Luminescence Line"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 15, No 12, Dec 70, pp 2075-2077

Abstract: This work presents a quantitative analysis of the form of the amplification curve of a laser with stable generation, based on the results of an earlier work, in a system of four-level impurity centers with an unevenly expanded luminescence line. The amplification is shown in figures as a function of frequency for single, double, and triple mode generation.

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USSR

UDC: 621.315.592

G  
GODIK, E.E., POKROVSKIY, Ya.Ye., and SVISTUNOVA, K.I.

"Photosensitivity of Silicon Doped with Boron, Ga-lium, or Indium"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 739-744

Abstract: Although doped germanium is now principally used for manufacturing photoresistors sensitive to radiation of 3-30 microns in wavelength, the authors investigated the photoconductivity and noise in silicon doped with In, Ga, and B to get information concerning the possibility of using doped silicon for photoresistances. Most of the results obtained from that investion -- the bibliography lists six such references -- were published earlier; the present article offers the hitherto unpublished results which directly characterize the photosensitivity of doped silicon. A table lists various types of silicon doped by the different impurities, and gives the various characteristics of each, including the concentration of acceptor and donor impurities as determined from the Hall effect and the conductivity. The equipment used for absolute measurements of the photosensitivity of the doped silicon is described in one of these earlier references. Various curves are given for the characteristics of these various silicon forms. The authors express their gratitude to S.G. Kalashnikov, L.N. Kurbatov, S.A. Kaufman, P.A. Bogomolov, and O.I. Kupchik for their useful comments, and to V.P. Sinis for his assistance in making

USSR

UDC 621.311.22

SIVACHEV, K. A., Candidate of Technical Sciences, GODIK, I. B., Candidate of Technical Sciences, Neymark, B. A., Engineer, and FLAKSERMAN, G. Yu., Engineer, All-Union Institute of Heat Engineering imeni F. Ye. Dzerzhinskiy, Moscow Branch of All-Union State Institute for the Planning of Electrical Equipment for Heat Engineering Installations

"Topping Plant SKR-100 for 300 kgsec/cm<sup>2</sup> and 650°C at Kashirsk State Regional Electric Power Plant"

Moscow, Teploenergetika, No 6, Jun 73, pp 8-12

Abstract: The modernization project of Kashirsk State Regional Electric Power Plant, by means of installation of the preconnected SKR-100 topping plant with the 100-Mw turbine R-100-300 to the acting part of medium compression of the Power Plant, was carried out by the Moscow Branch of All-Union State Institute for the Planning of Electrical Equipment for Heat Engineering Installations. The principle outfit of the topping plant, its heating schema particulars, and the selection of steel brands for parts working at supercritical steam parameters are described;

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SIVACHEV, K. A., et al., Teploenergetika, No 6, Jun 73, pp 8-12

the chosen variant of boiler-turbine grouping and the flow sheet of the topping plant are shown. The main results of 60 operating periods in the years 1967-1971 of SKR-100 topping plant and of its individual blocks are discussed. Two figures, two tables.

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USSR

UDC 577.45

BORISOV, A. Yu., GODIK, V. I., and CHIBISOV, A. K. Department of Bioenergetics, Laboratory of Bioorganic Chemistry, Moscow State University imeni M. V. Lomonosov, and Institute of Geochemistry and Analytical Chemistry imeni V. I. Vernadskiy, Academy of Sciences USSR, Moscow

"On the Types of Energy Transfer in Bacterial Photosynthesis"

Moscow, Molekulyarnaya Biologiya, Vol 4, No 4, Jul/Aug 70, pp 500-508

Abstract: The formation of triplet states of bacterial chlorophyll induced by flash illumination was studied in *Rhodospirillum rubrum* chromatophores. At saturating light intensity and in the presence of dithionite triplet states were not observed either under normal conditions or at low temperatures. The quantum yield of triplet states was low, since nonradiating transitions diminished the triplet state lifetime to no more than  $6.6 \times 10^{-5}$  sec (a value well above the sensitivity limit of the method used). On the basis of experimental data three possible types of energy transfer and photoinduced transformations in the reaction centers are considered. For each type, requirements are formulated for the rate of energy conversion at the reaction centers and the bacterial chlorophyll intersystem crossing rate. The results of the analyses show that energy transfer and transformation processes within the reaction centers are likely to take place without the participation of bacterial chlorophyll triplet states.

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USSR

GODIN, N. L., and KREMER, T. I., (Reviewers)

"Proizvodstvo Monolitnykh Paneley iz Alyuminiyevykh Splavov [Production of Monolithic Aluminum Alloy Panels] by M. Z. Yermanek and Yu. N. Aleksandrov, Metallurgiya Press, 1969, 215 pages

Tsvetnye Metally, No 1, 1971, page 90.

Abstract: The book here reviewed presents the results of studies of the primary processes of production of aluminum alloy panels (pressing, straightening, heat treatment, and finishing). Together with the research results, the book studies a number of general problems of the theory and technology of pressing, necessary for the creation of an efficient technological process. Problems of production of panels from flat and circular containers, their straightening, heat treatment, and finishing are discussed. The advantages of the use of monolithic pressed panels in aircraft and shipbuilding in comparison with the use of shapes and sheet materials are convincingly shown. The reviewers note that the book fails to discuss certain problems such as the changes in mechanical properties of panels as functions of drawing factor.

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USRR

UDC 621.791.1

IVANOV, V. YE., AMONENKO, V. M., GODIN, V. M., RYBAL'CHENKO, N. D., TRON', A. S., and YAKUSHIN, A. F., Khar'kov

"Properties of Compounds of Ti Alloys With Steel Made in Thin Layers"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 101-105

Abstract: The strength and plastic properties of the bimetals VT6S-lKhk8N10T, OT4-lKh18N10T, Vt14-lKh18M10T, and AT2-Khk8k0T with niobium-copper interlayers were studied in the temperature range from -196 to +1,000°C. The influence of the dimensional factor on the effect of contact hardening of the interlayer was established. The increase in the strength of the thin copper interlayers is explained by specifics of the stress state of the metal with low yield point, located between two stronger metals. This state of the metal during deformation results in higher shear stresses, resulting from blocking of dislocations by the stronger metal at the division boundary. The use of these thin interlayers of copper and niobium, preventing the formation

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IVANOV, V. YE., et al., Fizika i Khimiya Obrabotki Materialov,  
No 2, Mar-Apr 71, pp 101-105

of brittle compounds at the titanium-steel division boundary,  
allows the production of the material with high strength, good  
impact toughness, fatigue resistance, and satisfactory ductility.

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USSR

UDC 621.791.76.011:621.7.044.2:621.791.08:

539.4

TRUTNEV, V. V., Candidate of Technical Sciences, YAKUSHIN, A. F., DUKAYEV, A.A.,  
and MISHIN, N. I., Engineers, and GODIN, V. M., Candidate of Technical Sciences

"Comparative Evaluation of Joint Quality From Explosive Welding of Aluminum  
With Titanium, Steel and Nickel"

Moscow, Svarochnoye Proizvodstvo, No 7, Jul 73, pp 19-21

Abstract: Results of a comparative evaluation of the weldability of Al with Ti, steel, and Ni by explosion welding under identical conditions is presented. Plates of AMg6 alloy measuring 6x 65 x 130 mm were clad with hot rolled AD1 aluminum and plates of VT6 titanium alloy, Kh18Ni9Ti steel, and electrolytic nickel measuring 5 x 60 x 120 mm. From shear tests it was found that Al + Ti had the best weldability. Shear strength also increased when the distance between the metal being welded was increased from 3 to 5 to 8 mm with the highest test values noted for the distance of 5 mm. The shear strength of Al + Ni joints was better than that of Al + Kh18Ni9Ti steel. It was noted that the coefficient of impact energy utilization is one of the important parameters in the explosive welding process that affects the weldability of dissimilar materials. 3 figures, 2 tables, 6 bibliographic references.

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USSR

UDC 621.791.14:669.14.018.44

TRUTNEV, V. V., Candidate of Technical Sciences, KAMYSHEVA, G. P., Engineer, and CODIN, V. M., Candidate of Technical Sciences

"Friction Welding of EP56 Steel With EP202 Alloy"

Moscow, Svarochnoye Proizvodstvo, No 10, Oct 70, pp 17-18

Abstract: Welding of EP56 steel with EP202 nickel alloy in the solid phase by friction was studied; the diffusion processes in this instance occur significantly more slowly than in the solid-liquid phase during fusion welding. It is demonstrated that the embrittlement of the welded joint between the two metals produced in the solid state occurs after heat treatment as a result of formation of a narrow, softened zone in the joint. Embrittlement of these joints can be eliminated by increasing the thickness of the softened zone by introducing an intermediate layer similar in composition to this zone, for example, by using an interlayer of austenitic Kh12N22T2,5 steel.

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1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--BRAIN ELECTRICAL ACTIVITY IN THE SHERESHEVSKY TURNER SYNDROME AND  
MOSAICISM -U-  
AUTHOR-(02)-GGDINOVA, A.M., VERLINSKAYA, D.K.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970,  
VOL 70, NR 6, PP 873-879  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTROENCEPHALOGRAPHY, BRAIN, SYNDROME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/0189

STEP NO--UR/0246/70/070/006/0873/0879

CIRC ACCESSION NO--AP0127807

UNCLASSIFIED



2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127807

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REPORT CONCERNS AN ELECTROENCEPHALOGRAPHIC STUDY OF 34 PATIENTS (5 MOSAICS) WITH THE SHERESHEVSKY TURNER SYNDROME FROM THE AGE OF 7-32. THIS GROUP CONSISTED OF 21 GIRLS (2 MOSAICS) YOUNGER THAN 16 YEARS. THE DIAGNOSIS WAS ESTABLISHED PHENOTYPICALLY AS WELL AS BY KARYOLOGICAL DATA (AN ABSENCE OF SEX CHROMATINE, A DISTORTION OF THE SET OR THE EXISTENCE OF STRUCTURAL ANOMALIES OF THE SEX CHROMATINE). THE EEG IN MOST OF THE CASES WAS CHARACTERIZED BY A HOMOTYPICITY OF THE CURVES. THE MAIN ELECTRICAL ACTIVITY FELL ON THE BACKGROUND OF SLOW FLUCTUATIONS OF 1.5-3 SEC. IT WAS DESORGANIZED WITH A TENDENCY TO DESYNCHRONIZATION (RARELY TO A SYNCHRONIZATION), WITH A PREDOMINANCE OF FREQUENT LOW AMPLITUDE FLUCTUATIONS AN INCREASE OF SLOW WAVES IN THE THETA RHYTHM. THESE CHANGES WERE MORE STABLE AS THE PATIENTS GREW OLDER, WHILE AS THE EEG OF THE YOUNGER ONES HAD TRAITS OF AGE RETARDATION. IN MOSAICS THE EEG WAS RELATIVELY NORMAL. THESE STABLE CHANGES OF THE EEG WERE PARTIALLY CONFIRMED BY THE USE OF NEUROPHARMACOLOGICAL TESTS WITH AN ELECTIVE ACTION ON THE ADRENOREACTIVE STEM STRUCTURE AND MAY BE EXPLAINED AS A RESULT OF CORRESPONDING LOCAL CHANGES IN GENERALLY SOMATIC STRUCTURAL DISTURBANCES. FACILITY: LABORATORIYA MEDITSINSKOY GENETIKI AMN SSR, LENINGRAD.

UNCLASSIFIED

USSR

UDC 621.375.82

GODLEVSKIY, A. P., LOPASOV, V. P., and MAKOGON, M. M.

"Ruby Laser With Frequency Scanning and Stabilization of Radiation Parameters for Laser Spectroscopy"

V sb. Kvant. elektronika (Quantum Electronics -- Collection of Works), No 2(14), Moscow, "Sov. Radio," 1973, pp 68-71 (English summary) (from RZh-Fizika, No 10, Oct 73, Abstract No 10D831 from authors' abstract)

Translation: The article studies a ruby laser with stabilization of the radiation parameters. To achieve stabilization the cavity length was changed at a high speed (up to 6 m/sec) by means of a rotating glass plate placed in the cavity. A regular oscillating mode is obtained with the amplitude, repetition interval, spike length, and radiation divergence all stabilized. Control of the oscillation frequency was effected by means of a Lyot electro-optical filter. The range of oscillation frequency variation per pulse was  $0.1-7 \text{ cm}^{-1}$ , depending on the amount of scanning voltage, the accuracy of the frequency setting no worse than  $\pm 0.01 \text{ cm}^{-1}$ . It is suggested that a laser of this type be used to study the ultraweak absorption lines of a gaseous medium placed in the cavity. Bibliography with 13 titles.

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GODLEVSKIY, G.

MEDICINE

SO:JPRS 54304

22 OCT 71

UDC: 616-006.6-092.9-018.1-076.4

ULTRASTRUCTURAL DISTINCTIONS OF CANCER CELLS FOLLOWING IONOPHORESIS

(Article by G. Godlevskiy, V. Kiselevskiy, Institute of Pharmacology and Institute of Oncology, Moscow, USSR, Vestnik Akademii Meditsinskikh Nauk SSSR, Russian, No 8, 1971, pp 19-42)

In our preceding investigation (Godlevskiy and Penar) a study was made of changes developing under the effect of ionophoresis in a transferable ovarian ("Geren") tumor, which consisted of breaking up of the part of the tumor close to the cathode, formation of a "junction line" between the positive and negative electric fields and consolidation of the anode segment of the neoplasm; this study was pursued using a light microscope. For subsequent investigation of this problem an electron microscope was used.

After ionophoresis, small pieces of tumor were excised on the side of the anode and cathode. These fragments were fixed in 1% osmium tetroxide solution (pH: 7.4) or 1% glutaric aldehyde solution in a phosphate buffer (pH: 7.2). The fragments of tumor tissue fixed in glutaric aldehyde were additionally fixed in 1% osmium tetroxide solution after several elutions in a cacodyl buffer (pH: 7.2). The material was dehydrated with ascending concentrations of ethanol and imbedded in Epon-812. One micron sections stained with toluidine blue were used for light microscopy. Ultrathin sections were additionally stained with uranyl acetate and lead citrate, then examined under a JEM-7A electron microscope. Sections of transferable tumors that were not submitted to ionophoresis served as control material.

Figure 1 shows the electron microscopic picture of fragments of two tumor cells from control material. The tumor cells are spindle shaped, and the nuclei present numerous convolutions. The nuclear chromatin is located mainly on the periphery of the nucleus and is characterized by considerable electron density. In the central part of the nucleus there are numerous, irregularly shaped electron dense nucleoli. In the cytoplasm are seen mitochondria, as well as outlines of rough endoplasmic reticulum and ribosomes which lie freely or in small accumulations.

The authors wish to thank Professor V. Kiselevskiy for allowing us to take photographs.

USSR

GODLEVSKIY, V. S., VERLAN', A. F., VLADIMIROV, V. M.

"Problem of Selection of Tolerances for Specialized Computer Elements"

Kibernet. i Vychisl. Tekhn. Resp. Mezhyed. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1972, No 18, pp 7-12 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V623, by the authors).

Translation: A method is studied for selection of tolerances for parameters of specialized computer devices, based on the use of methods of the theory of sensitivity, linear and nonlinear programming. The goal functions used may be cost, development time, weight, etc.

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Acc. Nr: **APC106268**

**GODLEVSKIY V.S.**

Ref. Code: **UR 0103**

PRIMARY SOURCE: Avtomatika i Telemekhanika, 1970, Nr **3**, pp  
**155-161**

CONCERNING ESTIMATION OF ERRORS OF LINEAR BLOCKS  
OF AUTOMATIC COMPUTER

**V. S. GODLEVSKIY**

There is suggested a method of estimating dynamic errors of the scale and the  
integrating elements acceptable for a wide class of input signals.

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REEL/FRAME  
**19881512**

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--COMPARISON OF METHODS FOR SEPARATING AND DETERMINING FLUORINE IN  
THE PRESENCE OF ZIRCONIUM -U-  
AUTHOR-(02)-GODNEVA, M.M., MOTOV, D.L.  
COUNTRY OF INFO--USSR  
SOURCE--ZAVOD. LAB. 1970, 36(2), 151-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--FLUORINE, ZIRCONIUM, FLUORIDE, CHEMICAL ANALYSIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/1881 STEP NO--UR/0032/70/036/002/0151/0154  
CIRC ACCESSION NO--AP0118843  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0113843

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. METHODS FOR DECOMPG. F-ZR COMPLEXES IN THE DETN. OF F WERE COMPARED. THE EFFECT OF ZR ON THE DISTN. OF H SUB2 SIF SUB6, AND THE SEPN. OF ZR BY PPTN. WITH NaOH WERE STUDIED. ZR(OH)SUB3 F, ZR(OH)SUB4-X F SUBX, AND K SUB2 ZRF SUB6 WERE ANALYZED. STEAM DISTN. OF H SUB2 SIF SUB6 WERE PERFORMED AT 100-140DEGREES AND 220-240DEGREES IN THE PRESENCE OF H SUB2 SO SUB4 AND H SUB3 PO SUB4, RESP., UNTIL THE DISTILLATE WAS FLUORIDE FREE. THE FIRST ZR PPTN. WAS CARRIED OUT AT ROOM TEMP. THE MIXT. WAS ALLOWED TO STAND FOR 1 HR, THE PPT. WAS SEPD. BY FILTRATION AND DISSOLVED IN 5-10PERCENT H SUB2 SO SUB4. THE 2ND PPTN. WAS FROM A HOT SOLN. THE RESULT OF THE DETN. OF F BY TITRN. WITH TH PRIME4 POSITIVE AFTER THE PPTN. OF ZR WAS ENHANCED BY 3-16PERCENT BY ACTION OF SO SUB4 PRIME2 POSITIVE. THE REPEATED ZR PPTN. IS NECESSARY TO AVOID F LOSSES. RESULTS OBTAINED BY THE DISTN. WITH H SUB2 SO SUB4 ARE WORSE THAN WITH H SUB3 PO SUB4 DUE TO BOTH LOW TEMP. AND WEAK BINDING BETWEEN SO SUB4 PRIME2 POSITIVE AND ZR. IN K SUB2 ZRF SUB6 THE DISTN. WITH H SUB3 PO SUB4 COMBINED WITH THE ZR PPTN. YIELDED NEARLY THEORETICAL RESULTS.

UNCLASSIFIED

USSR

UDC 621.382.3

GODOV, A.N., GORYUNOV, N.N., ITKIN, B.YA., KOTOV, V.N.

"Evaluation Of The Quality Of Transistors With Respect To Transient Thermal Responses"

Elektron. tekhnika. Nauchno-tekhn. sb. Upr. kachestvom i standartiz. (Electronic Technology. Scientific-Technical Collection. Quality Control And Standardization), 1970, Issue 3, pp 22-28 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 43595)

Translation: An account is given of a new method for evaluation of the quality of transistors with respect to transient thermal responses. A unit for observation of these responses is described. The solution of an equation for thermal conductivity is presented, which makes it possible to analyze thoroughly transient thermal responses obtained experimentally. Summary.

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USSR

UDC 534.014

GODOVANNIK, B. V. (Leningrad)

"Synchronization of Vibrators During the Longitudinally Rotatory Oscillations of a Shell That is Being Driven Into the Ground"

Moscow, Mashinovedeniye, No 5, Sept-Oct 73, pp 17-23

Abstract: Consideration is given to a problem of the synchronization of two mechanical vibrators which transmit the longitudinally rotatory oscillations of a shell that is being driven into the ground. The shell that is immersed is idealized in the form of an absolutely solid body with six degrees of freedom, the possibility of its sidewise swaying within the ground being taken into account. It is assumed that the ground resists the lateral shifts of the shell in the manner of an ordinary Winkler base, and that a Coulomb frictional force acts between the surface of the shell and the ground. In the course of solving the problem are defined the conditions which provide for the existence of an operating synchronous cophasal regime in the system. The necessary and sufficient conditions of stability are found. Also obtained are expressions for the average rate of vibroimmersion, and the unevennesses which permit a selection to be made of the design and operating parameters of the vibratory unit that are necessary for providing the operating synchronous cophasal regime. 2 figures. 8 references.

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GODOVIKOV, A.A.

3 pms 5/10/03

6-73

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VII-1) PLATON BETWEEN THE NATURE OF CLEAVAGE AND THE DEGREE OF STRESS OF SINGLE CRYSTALS OF PROUSTITE

Article by A. A. Godovikov, M. G. Serbulenko, B. G. Stetshev, V. K. Chetrey, Novosibirsk-Novosibirsk, 111 Stremozhno po Porsessu, Bala i Shtetza Poluprovodnikov Khranilov i Plesok, Russia, 12-11 June 1972, p 103

As a5, proustite is a compound with a quite clear rhombohedral cleavage -- (1011). The study of the cleavage of single crystals grown by the Bridgman-Stockert method demonstrates that the degree of inhibition of cleavage in them differs -- from clear to perfect. The comparative study of the cleavage surfaces using a scanning electron microscope revealed significant differences in its surface in different crystals. The optical (gonoscopic) study of such crystals permitted establishment of the fact that they are distinguished by the degree of stress. Optically uniaxial crystals were characterized by less perfect cleavage. The crystals with strong internal stresses arising during rapid cooling of them turned out to be optically biaxial with perfect rhombohedral cleavage.

The surface of the cleavage can obviously be used for a fast qualitative estimate of other single crystals characterized in the unstressed state by insufficiently perfect cleavage. The same characteristic can also be applied to crystals of many natural minerals, the degree of perfection of the cleavage of which will be determined by the thermal history of the minerals themselves and the enclosing minerals.

USSR

UDC 577.133.4

ABDUVAKHABOV, ZUPAROVA, K. M., GODOVIKOV, N. N., KABACHNIK, M. I.,  
KRASHENYUK, A. I., MIKHAYLOV, S. S., and ROZENGART, V. I., Tashkent State  
University, Institute of Element-Organic Compounds, USSR Academy of Sciences,  
and I. P. Pavlov First Leningrad Medical Institute

"New Hydrophobic Areas in the Region of the Esterase Center of Cholinesterases"

Moscow, Doklady Akademii nauk SSR, No 5, 1973, pp 1209-1212

Abstract: The anticholinesterase properties of three series of synthesized organophosphorus inhibitors with alkyl radicals of different lengths were studied in bovine erythrocyte acetylcholinesterase and horse serum butylcholinesterase. In the case of acetylcholinesterase, the compounds in which a methyl group was linked to the phosphorus atom exhibited the maximum inhibitory activity. Lengthening the alkyl radical either diminished their anticholinesterase properties or had no effect. With respect to butylcholinesterase, lengthening the alkyl radical in the inhibitors markedly increased their anticholinesterase activity. Compounds with cationic sulfur had the highest constants of the rate of inhibition because of the interaction of the positively charged sulfur atom with the anionic center of cholinesterase. The changes detected in the anticholinesterase properties

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ABDUVAKHABOV, et al., Doklady Akademii nauk SSR, No 5, 1973, pp 1209-1212

within each series of the inhibitors investigated are attributed to differences in the extent of sorption of the alkyl groups on the corresponding hydrophobic area. The latter appears to be in the region of the esterase center.

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- 7 -

UDC 542.91:547.1'118

USSR

ABDUVAKHABOV, A. A., ZUPAROVA, K. M., GODOVIKOV, N. N., KABACHNIK, M. I., ASLANOV, Kh. A., and SADYKOV, A. S., Institute of Organoelemental Compounds, Academy of Sciences USSR, and Tashkent State University imeni V. I. Lenin, Tashkent

"The Synthesis of Some O-Ethyl-S-alkyl Alkylthiophosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 73, pp 1659-1661

Abstract: It was established in earlier work by the authors that the anticholinesterase activity of O-alkyl-S-alkyl methylthiophosphonates increases with an increasing length and degree of branching of the alkyls at O and S. However, the effect of the alkyl at P on the physiological activity of compounds of this type had not been studied. To carry out this study, the O-ethyl-S-butyl alkylthiophosphonates  $\text{EtO(R)P(O)SBu}$  (I; R = Et, n-Pr, n-Bu), O-ethyl-S-(beta-ethyl-mercaptoethyl) alkylthiophosphonates  $\text{EtO(R)P(O)SC}_2\text{H}_4\text{SEt}$  (II; R = Et, n-Pr, n-Bu), and methylsulfomethylates of II (III) were synthesized. O,O-Diethyl alkylphosphonates  $(\text{EtO})_2\text{P(O)R}$ , which were prepared starting with diethyl phosphite as 1/2

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USSR

ABDUVAKHABOV, A. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 73, pp 1659-1661

described in earlier work, formed the acid chlorides  $\text{EtO(R)P(O)Cl}$  (IV on being reacted with  $\text{PCl}_5$ . IV, on being reacted with butylmercaptan and beta-mercaptodiethyl sulfide, yielded I and II, respectively. Compounds III were obtained by reacting II with dimethyl sulfate. The physical properties of the compounds synthesized are listed in tables.

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USSR

UDC 542.91+541.69:547.1'118

ABDUVAKHABOV, A. A., ~~GODOVNIKOV, N. N.~~, KABACHNIK, M. I., KRIVOROTOVA, L. S., MIKHAYLOV, S. S., and ROZENGART, V. I., Institute of Heteroorganic Compounds, Academy of Sciences USSR, and First Leningrad Medical Institute imeni I. P. Pavlov

"Reaction of O-n-Alkyl S-( $\beta$ -ethylmercaptoethyl) Methylthiophosphonates and Their Methylsulfomethylates With Acetylcholinesterase"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 5, May 72, pp 1169-1172

Abstract: The authors studied the reaction of acetylcholinesterase with O-n-alkyl S-( $\beta$ -ethylmercaptoethyl) methylthiophosphonates and their methylsulfomethylates to determine whether there is a hydrophobic site in the region of the esterase center of this enzyme. It was found that there is one hydrophobic site in the immediate vicinity of the esterase center of AChE, with alkyl radicals of the alkoxyl group sorbed at this site. The overall extent of this site corresponds to the n-butyl radical. The ability of these compounds to react with AChE depends to a considerable extent on their sorbability on the enzyme active surface, both through hydrophobic interactions and through ionic sorption.

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USSR

UDC 542.97:547.1'118

KABACHNIK, M. I., ~~GODOVIKOV, N. N.~~, PISARENKO, V. V., and ZAKHAROV, L. S.,  
Institute of Metal Organic Compounds, Acad. Sc. USSR

"Preparation of Polyfluoroalkyl Esters of Alkyl and Aryl Phosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72,  
pp 1667-1669

Abstract: Phosphorylation of polyfluoroalkanols with acid chlorides of the  
alkyl- or arylphosphonic acids is catalyzed by the metal salts of the II group  
of periodic system. A series of polyfluoroalkyl esters of alkyl and arylphos-  
phonic acid has been obtained by this reaction in quite a pure state.

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USSR

UDC 547.26'118'558.1

GODOVIKOV, N. N., KARDANOV, N. A., and KABACHNIK, M. I., Institute of Elementorganic Compounds, Academy of Sciences of the USSR

"Synthesis of O-( $\beta$ -Alkylmercaptoethyl) Diphenylphosphinates, S-( $\beta$ -Alkylmercaptoethyl) Diphenylthiophosphinates and Their Methiodides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(103), No 2, Feb 72, pp 273-276

Abstract: A number of O-( $\beta$ -alkylmercaptoethyl) diphenylphosphinates, S-( $\beta$ -alkylmercaptoethyl diphenylthiophosphinates and the corresponding methiodides were synthesized. The O-( $\beta$ -alkylmercaptoethyl diphenylphosphinates were produced by interacting diphenylphosphinoyl chloride with  $\beta$ -hydroxyethyl alkyl sulfides in the presence of triethylamine. The S-( $\beta$ -alkylmercaptoethyl) diphenylthiophosphinates were synthesized by first converting  $\beta$ -hydroxyethyl- alkyl sulfides to  $\beta$ -chloroethyl alkyl sulfides by treatment with thionyl chloride. The resultant  $\beta$ -chloroethyl alkyl sulfides were then reacted with potassium diphenylthiophosphinate to obtain the S-( $\beta$ -alkylmercaptoethyl diphenylthiophosphinates. The corresponding methiodides were synthesized by treating the resultant phosphinates with methyl iodide. The starting  $\beta$ -hydroxyethyl alkyl sulfides

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USSR

GODOVIKOV, N. N., et al., Zhurnal Obshchey Khimii, Vol 42(103), No 2,  
Feb 72, pp 273-276

for the reactions were synthesized by treating thiourea in order with alkyl bromides, an aqueous solution of potassium hydroxide, and ethylene chlorohydrin, without isolation of the intermediate products. The synthesized compounds are analogs of the physiologically active O-ethyl S-( $\beta$ -alkyl-mercaptoethyl) methylphosphonates.

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USSR

UDC 542.91:547.1'118

ZAKHAROV, L. S., PISARENKO, V. V., ~~GODOVNIKOV, N. N.~~, and KABACHNIK, M. I.,  
Institute of Heteroorganic Compounds, Academy of Sciences USSR

"Catalytic Phosphorylation of Polyfluorinated Alcohols. 1. Preparation of  
Tripolyfluoroalkyl and Arylpolyfluoroalkyl Phosphates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71,  
pp 2503-2509

**Abstract:** The authors found that phosphorus oxychloride reacts with alcoholates of polyfluorinated alcohols in absolute ether at room temperature to give symmetric polyfluorotrialkyl phosphates. However, in the interaction of aryl chlorophosphates with alcoholates of polyfluorinated alcohols there is a rearrangement of ether radicals and the formation of a mixture of phosphates. Polyfluorotrialkyl phosphates are not decomposed by hydrogen chloride even during prolonged heating. This made it possible to check the catalytic activity of metal salts in the phosphorylation of polyfluorinated alcohols. Many salts of metals of groups I-III of the periodic system are effective catalysts. The catalytic effect was studied in detail by the authors in the phosphorylation of 1,1-dihydroperfluorobutyl alcohol with phosphorus oxychloride. Salts of 1/2

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USSR

ZAKHAROV, L. S., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 11, Nov 71, pp 2503-2509

group II metals are the most effective catalysts, with  $\text{CaCl}_2$  and Mg the most convenient preparation-wise. Salts of group I metals are not as effective as salts of group II metals, but they can be used for preparative purposes (ammonium salts). It is suggested as a mechanism for the catalytic phosphorylation of polyfluorinated alcohols that nucleophilic attack on the phosphorus oxychloride molecule is facilitated as a result of the interaction of catalyst with phosphoryl group. A series of symmetric polyfluoroalkyl phosphates and arylpolyfluoroalkyl phosphates were synthesized by using the catalytic method devised for the phosphorylation of polyfluorinated alcohols.

Analysis of all the resultant compounds was performed at the Micro-analysis Laboratory by TM. SHANINA, T. S. SEREBRYAKOVA and N. I. LARINA, whom the authors thank. The authors also thank A. G. OSHUYEV, YE. K. TSIRUL' and N. P. ANTONOVA for providing the specimens of polyfluorinated alcohols.

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USSR

UDC 547.26'118

GODOVIKOV, N. N., GUDRALIYEV, Kh. Kh., and KABACHNIK, M. I., Institute of Organoelemental Compounds, Academy of Sciences USSR

"Synthesis of S-( $\beta$ -Arylmethylaminoethyl) Diphenylthiophosphinates and Their Methiodides"

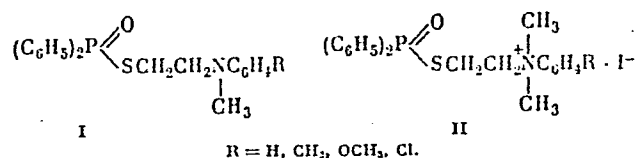
Leningrad, Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1942-1944

Abstract: Earlier research indicates that some O,O-diethyl S-( $\beta$ -arylmethylaminoethyl) thiophosphates and their methyl sulfates possess selective activity toward butyrylcholine esterase. The purpose of this study was to determine whether such selective action would be reflected in similar triophosphates having (at the phosphorus atom) bulky substituents such as phenyl groups. To this end a synthesis was carried out of the series S-( $\beta$ -arylmethylaminoethyl) diphenylthiophosphinates (I) and their methidides (II)

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USSR

GODOVIKOV, N. N., et al., Zhurnal Obshchey Khimii, Sep 71, Vol 41, No 9, pp 1942-1944



Compounds (I) were obtained by treatment of N-methyl-N-β-bromo(chloro)-ethylarylamines with sodium diphenylthiophosphinate. To increase yields, use was made of bromoderivatives (in most cases); the yields of the corresponding thioesters were 70-80%. The obtained compounds were boiled in nitromethane with excess methyl iodide to form the appropriate methiodides (II). The experimental portion of the synthesis of N-methyl-N-β-bromomethyl-m-chloroaniline, S-(β-arylmethylaminoethyl) diphenylthiophosphinates and methiodides of S-(β-arylmethylaminoethyl) diphenylthiophosphinates is described in great detail. Tables citing constant values, yields and other analytical results are given.

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USSR

UDC 547.26'118

KARDANOV, N. A., GODOVIKOV, N. N., and KABACHNIK, M. I., Institute of Element-Organic Compounds, Academy of Sciences USSR

"Synthesis of O- $\omega$ -Ethylmercaptoalkyl Diphenylphosphinates and Their Methiodides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (103), No 2, Feb 71, pp 327-330

Abstract: In an attempt to prepare compounds with cholinolytic action a series of O- $\omega$ -ethylmercaptoalkyl diphenylphosphinate methiodides (I) was synthesized by the reaction of diphenylphosphinyl chloride with  $\omega$ -hydroxy ethyl sulfides (II) in presence of triethylamine. The intermediate O- $\omega$ -ethylmercaptoalkyl diphenylphosphinates were then treated with methyl iodide to give (I). Several routes were used to get the starting (II):  $\gamma$ -hydroxypropyl-ethyl sulfide was synthesized by addition of ethyl mercaptan to allyl alcohol in presence of benzoyl peroxide; the delta-hydroxybutyl homolog was obtained by reaction of  $\delta$ -chlorobutanol with sodium ethylmercaptide. To synthesize  $\epsilon$ -hydroxypentyl- and hydroxyhexyl ethyl sulfides  $\omega$ -bromoalkyl benzoate was allowed to react with potassium methyl-mercaptide, followed by saponification. No biological data are reported.

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USSR

UDC Not given

KABACHNIK, M. I., GODOVIKOV, N. N., PISARENKO, V. V., ZAKHAROV, L. S., "Order of Lenin" Institute of Organo Elemental Compounds, Moscow, Academy of Sciences USSR

"A Method of Producing Polyfluoroalkyldichlorophosphates"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Zanki, No 18, 1970, Author's Certificate No 271518, filed 13 Mar 69, p 24

Abstract: This Author's Certificate introduces: 1. A method of obtaining polyfluoroalkyldichlorophosphates by interacting polyfluoroalkyl alcohol with phosphoryl chloride in the presence of heat. As a distinguishing feature of the patent, the process is simplified by carrying out the reaction in the presence of chlorides of metals in groups I, II and III of the periodic table. 2. The method described in (1) is distinguished by the fact that the phosphoryl chloride and polyfluoroalkyl alcohol are used in a ratio of 5:1, the process is carried out at a temperature of 70-120° C.



Biochemistry

USSR

KABACHNIK, M. I., Academician, and GOLOVIKOV, N. M., Institute of Heteroorganic Compounds, Academy of Sciences USSR, Moscow

"Role of Ionic Interactions in Cholinesterase Inhibition"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 348-351

Abstract: The rate constants for cholinesterase inhibition under the action of organophosphorus inhibitors (OPI) carrying a positive charge are related to the reaction rate constants for inhibitors of the same structure, but without a charge, by the equation

$$\log k_{II}^+ = \log k_{II}^0 + \frac{e^2}{2.3kTD\epsilon} + \Delta \log k'$$

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USSR

KABACHNIK, M. I., and GODOVNIKOV, E. N., Doklady Akademii Nauk SSSR, Vol 198, No 2, 1971, pp 348-351

where  $\Delta \log k'$  is the difference between the constants  $k'$  for a charged and uncharged OPI molecule. The sorption of an inhibitor on the active surface of butyryl cholinesterase is determined mainly by hydrophobic interactions, and the appearance of a cation group in the inhibitor promotes the inhibition process, first of all by increasing the electrophilic reactivity of the OPI and to a lesser extent through the effect of ionic vapor formation (with the conformation of the active surface preserved). In the case of acetylcholinesterase inhibition a sharper increase in the inhibition rate with the appearance of a positive charge in the OPI molecule takes place than can be attributed only to ion pair formation or increased electrophilic reactivity of the OPI. It can be assumed that conformational changes in the enzyme play a much larger role here. The substrate specificity of AChE and nonspecificity of BuChE may be due to this difference.

2/2

USSR

UDC 542.91:547.1'118:541.69

KRESTKIN, A. P., VOLKOVA, R. I., GODOVIKOV, N. N., KABACHNIK, M. I.,  
KARDANOV, N. A., Institute of Organoelemental Compounds of the Soviet  
Academy of Sciences; Institute of Evolutionary Physiology and Biochemistry  
imeni I. M. Sechenov of the Soviet Academy of Sciences

"Interaction of S-( $\beta$ -Alkylmercaptoethyl)diphenylthiophosphinates,  
O-( $\beta$ -Alkylmercaptoethyl)diphenylphosphinates and Their Iodomethylates  
With Butyrylcholinesterase"

Moscow, Izv. An SSSR: Ser. Khimicheskaya, No 3, Mar 73, pp 622-627

Abstract: The paper gives the results of research on the kinetics of  
inhibition of butylcholinesterase by S-  $\beta$ -alkylmercaptoethyl diphenyl-  
thiophosphinates, O-  $\beta$ -alkylmercaptoethyl diphenylphosphinates and their  
methiodides. It is found that these substances have a combination type  
of inhibiting action which increases with the length of the alkyl radical  
bound to the sulfide or sulfonium sulfur atom.

1/1

- 21 -

USSR

UDC 542.91:541.69:547.1'118:547.9

VOLKOVA, R. I., KARDANOV, N. A., BRESTKIN, A. P., GODOVI'KOV, N. N., and KABACHNIK, M. I., Institute of Organoelemental Compounds, Academy of Sciences USSR and Institute of Evolutionary Physiology and Biochemistry imeni I. M. Sechenova, Academy of Sciences USSR

"Reaction of S-( $\omega$ -Ethylmercaptoalkyl)diphenylthiophosphinates, O-( $\omega$ -Ethylmercaptoalkyl)diphenylphosphinates and Their Methyl Iodates With Cholinesterase From the Serum of Horse Blood"

Moscow, Seriya Khimicheskaya, 9, 1973, pp 2114-2119

Abstract: The kinetic constants were determined for the combined inhibition of butyrylcholinesterase by the diphenylthiophosphinates  $(C_6H_5)_2P(O)S(CH_2)_nSC_2H_5$  and their methyl iodates  $(C_6H_5)_2P(O)S(CH_2)_nS^+(CH_3)C_2H_5 \cdot I^-$  for  $n = 2$  to 6. The constant for the reversible inhibition by the analagous oxygen ethers was also determined. The ability of the diphenylthiophosphinates, diphenylphosphinates and their methyl iodates to reverse the sorption on the active sites of the increases with increasing number of  $(CH_2)$  units. The rate constant for the nonreversible inhibition does not change significantly as  $n$  increases for the sulfide thioethers but in the sulfonium thioethers, it decreases with a decrease in the rate constant for their base hydrolyses.

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USSR

UDC 542.91.542.978

ROZANTSEV, E. G., GRIGORYAN, G. L., GUSOVSKAYA, T. P., ~~and others~~ GODOVIKOV, N. N.,  
AND TEPLOV, N. YE., Institute of Chemical Physics, Academy of Sciences USSR  
and Institute of Metallorganic Compounds, Academy of Sciences USSR

"Synthesis of Some Spin-labelled Inhibitors and Choline-esterase Substrate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71,  
pp 2334-2336

Abstract: 1.2 g of 2,2,6,6-tetramethyl-4-chloroacetoxypiperidine-1-oxyl  
(I) was dissolved in 8 ml ether, 0.75 g of dimethylaminomethylacetate was  
added to it, and the reaction mixture was left standing for one day. The  
solvent was evaporated yielding crystalline N,N'-dimethyl-N-acetoxymethyl-N-4-  
(2,2,6,6-tetramethylpiperidin-1-oxyl)carboxymethylammonium chloride m.p.  
163.5-165°. Addition of triethylamine to (I) under similar conditions gave  
N,N,N,-triethyl-N-4-(2,2,6,6-tetramethylpiperidin-1-oxyl)carboxymethylammonium  
chloride, m.p. 109-111°. A solution of 2 g of (I) in absolute ether was  
added slowly with cooling and stirring to 1.55 g O-ethylethylchlorophosphonate  
and 1.2 g triethylamine in absolute ether. After 24 hrs of standing the  
reaction mixture was filtered, the solvent was evaporated and the product --  
1/2

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USSR

ROZANTSEV, E. G., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2334-2336

O-ethyl-O-4-(2,2,6,6-tetramethylpiperidin-1-oxyl)methylphosphonate crystallized slowly from hexane. Analogously the O-p-nitrophenyl-O-4-(2,2,6,6-tetramethylpiperidin-1-oxyl)methylphosphonate was obtained from O-p-nitrophenylmethylchlorophosphonate, triethylamine and (I).

2/2

USSR

UDC: 621.3.049.75

GODOVITSYN, Ye. V., USMANOV, R. A., BELYAKOV, V. M., LAVRIXICHEV, V. P.,  
LAPSHINOVA, Zh. V., VIKULINA, N. V.

"A Method of Making Thin-Film Circuits"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 27, 1970, Soviet Patent No 279728, Class 21, filed 20 Dec 68, p 53

Abstract: This Author's Certificate introduces a method of making thin-film circuits based on forming circuit conductors on a dielectric substrate by means of an acid resist made from modified rubber, and coating the conductors with a layer of copper and gold. As a distinguishing feature of the patent, adhesion of the resist to the metallized substrate is improved by coating the substrate with a layer of iron over which the resist is applied.

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USSR

UDC 546.882:539.23:543.062

GODOVSKAYA, K. I., BABENKO, A. S., and ALFEROV, YE. A.

"Extraction-Photometric Determination of Niobium in Nb-Ti Thin Films Using Rodanide and Dioctylaniline"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 10, Oct 73, pp 1169-1171

Abstract: An extraction-photometric method has been developed for determining niobium in thin Nb-Ti films with the aid of rodanide and hydrochloric dioctylaniline where the thin films are 500-1300 Å thick over an area of 36-100 cm<sup>2</sup>. One of the purposes for making the niobium determination was to determine the film superconductivity, which is a function of the film composition. The complex is extracted by a 0.01 molar solution of dioctylaniline and HCl in a mixture of CCl<sub>4</sub> and acetone (5:1).

The intervals of reagent concentration were found in which titanium is not extracted and the extraction of niobium is maximum. Relative error of niobium determination in the 20-80 microgram interval did not exceed 5% with a mean error of 1.7% as determined from the standard deviation of statistical data compilations. Two figures, one table, four bibliographic references.

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1/2 037 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--SOLUTION OF UNIDIMENSIONAL PROBLEMS OF GAS DYNAMICS IN MOVING  
NETWORKS -U-  
AUTHOR-(04)-ALALYKIN, G.B., GODUNOV, S.K., KIREYEVA, I.L., PLINER, L.A.  
COUNTRY OF INFO--USSR  
SOURCE--RESHENIYE ODNOMERNYKH ZADACH GAZOVOY DINAMIKI V PODVIZHNYKH  
SETKAKH, MOSCOW, NAUKA, 1970, 110 PP  
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAS DYNAMICS, PLASMA SHOCK WAVE, ELECTRODE PROPERTY,  
DIFFERENCE METHOD, MONOGRAPH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1985/0779

STEP NO--UR/0000/70/000/000/0001/0110

CIRC ACCESSION NO--AM0101153

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AM0101153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5.  
CHAPTER I DIFFERENCE DIAGRAMS 7. II DISCONTINUITY DECOMPOSITIONS  
67. APPENDIX I CALCULATION OF FORMATION OF A SHOCK WAVE FORMING IN  
INTERSECTING CHARACTERISTICS 90. II MECHANICAL EFFECTS ON AN  
ELECTRODE IN ACCUMULATION OF PLASMA ON THE AXIS 93. APPENDIX III 99.  
BIBLIOGRAPHY 112.

UNCLASSIFIED

USSR

UDC 019.941(05)

GOR'KOVA, V.I.. MELLION, S.P.. ZAYTSEVA, M.A., ARAKELOVA, L.V., KASPAROVA, V.G., GODUNOVA, L.I., and KASPAROVA, S.G.

"A System for Analyzing a Documental Information Flow Consisting of Scientific Journals"

Moscow, Nauchno-Tekhnicheskaya Informatsiya, Seriya 1, Organizatsiya i Metoda Informatsionnoy Raboty, No. 4, 1971, pp 5-9

Abstract: Due partly to great irregularities in the reception of source documents by VINITI [Vsesoyuznyy Institut Nauchnoy i Tekhnicheskoy Informatsii; All-Union Institute of Scientific and Technical Information], there is a delay between the appearance of an original scientific work and VINITI's publication of an abstract of it in the appropriate Referativnyy Zhurnal (an average of 2.0-2.4 months for abstracting and editing and 1.1 month for processing are required). A study revealed that this delay could be reduced if specialized scientific journals were received directly by the editor of the appropriate abstract journal, without the usual preliminary sorting and processing. In order to carry out this study, a system for analyzing primary sources of

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USSR

UDC 019.941(05)

GOR'KOVA. V.I., MELLION, S.P., et al., Moscow, Nauchno-Tekhnicheskaya Informatsiya, Seriya 1, Organizatsiya i Metodika Informatsionnoy Raboty, No. 4, 1971, pp 5-9

information -- periodic and continuing publications -- was developed and introduced. It enabled the researchers to rank the totality of source journals in descending order of frequency of inclusion of articles from them in the abstract journal for a specific field. From this ranking, a list of the most frequently used journals was obtained for the given abstract journal.

The system for analyzing primary sources, which utilized punchcard processing equipment, the Gamma-10 machine, and a Minsk-22 computer, proved to have great potentialities for the improvement of VINITI's system of information servicing and for the development of the theoretical foundations of systems and structural analysis of information flows.

Although this research was concerned with documental information flows consisting of scientific journals, analogous investigations could be carried out for patent literature and literature of other types.

2/2

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USSR

UDC 621.315.42:001.5

GODYAK, V.A., IVLEV, A.V., SHIRCOHIN, L.A.

"Analysis Of Current Dynamics In Drift Space With Inductive Load"

Radiotekhnika i elektronika, Vol XVII, No 6, 1972, pp 1293-1296

Abstract: A dynamic regime is considered of current passage in a one-dimensional drift space, produced by the accelerating grid of an electron source and a collector between which an inductive load is included. In this case the character of the load applies a limitation to the time dependence of the critical current because in a dynamic regime the retarding potential  $V_p = -L di/dt$  originating at the collector can lead to instability of the current in the load L. The critical current equation, the emission current at the surface limited by a space charge, the injection of electrons with fixed energy, and a supplementary source of accelerating voltage are discussed. 1 ref. Received by editors, 12 February 1971.

1/1

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USSR

UDC 624.131.43+539.21.084-492.3

GODZEVICH, I. N., BABAYANTS, G. V.

"Experimental Study of the Damping of Surface Waves of a Soil Foundation"

Tr. Krasnodar. politekhn. in-t (Works of Krasnodar Polytechnical Institute), 1971, No. 34, pp 129-133 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V930)

Translation: The amplitudes of vertical oscillations of the ground surface at various distances from a rectangular stamp on which a time-variable vertical force acts were measured experimentally. The experiments were conducted in sandy soil with  $\gamma_c = 1.65 \text{ g/cm}^3$  and a porosity  $n = 0.38$  and in clay soil with  $\gamma_c = 1.45 \text{ g/cm}^3$  and  $n = 0.37$ . The frequency of oscillations of the force  $\nu$  was  $3200\text{--}5800 \text{ min}^{-1}$ . The area of the stamp was  $1840 \text{ cm}^2$ . It was shown that the amplitude of the oscillations of the ground  $A$  drops with the distance from the stamp following an exponential law. The amplitude of the ground oscillations decreases with the rise in  $\nu$ . In sandy soil at a distance of 80 cm from the stamp  $A/A_0 = 0.197$  for  $\nu = 3200 \text{ min}^{-1}$  and  $A/A_0 = 0.05$  for  $\nu = 5200 \text{ min}^{-1}$ .  $A_0$  is the amplitude of the oscillations of the stamp. G. M. Lyakhov.

1/1

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USSR

UDC 621.396.662.6(088.8)

G  
GODZEVSKIY, A. K.

"Radio Receiver Tuning Indicator"

USSR Author's Certificate No 251024, Filed 9 Nov 66, Published 2 Feb 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D67P)

Translation: This author's certificate introduces a radio receiver tuning indicator using a frequency discriminator, a tuning indicator and a semiconductor diode for rectification of the output voltage. In order to obtain a unipolar voltage with a sharp maximum at the tuning frequency at the input of the tuning indicator, the outputs of the semiconductor diodes rectifying the discriminator voltage are connected in series to the output of the voltage envelope detector in the last loop of the intermediate frequency channels so that subtraction of the rectified voltage of the discriminator and the voltage of the envelope detector is realized.

1/1

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EXPERIMENTAL MANUFACTURE OF ALL WELDED PANELS OF THE AVERAGE  
RADIATOR PART OF THE PK-38-2 BOILER -U-  
AUTHOR-(03)-VIVSIK, S.N., GODZHIYEVA, YE.M., KHARIN, V.P.  
COUNTRY OF INFO--USSR  
SOURCE--LENINGRAD, ENERGO MASHINOSTROYENIYE, NO. 2, 1970, PP 32-34  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--WELDING TECHNOLOGY, BIBLIOGRAPHY, STEAM BOILER/(U)PK382 BOILER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1997/1843

STEP NO--UR/0114/70/000/002/0032/0034

CIRC ACCESSION NO--AP0120520

UNCLASSIFIED



2/2 019

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120520

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPERIMENTAL MANUFACTURE OF COMMERCIAL ALL WELDED BLOCKS OF THE AVERAGE RADIATOR PART OF THE PK-38-2 BOILER (270 TONS-HOUR, 140 GAGE ATMOSPHERE, 570DEGREESC) MADE FROM TELESCOPIC PIPES IS CONSIDERED. THE BASIC TECHNOLOGICAL OPERATIONS OF THEIR MANUFACTURE ARE DESCRIBED WITHOUT THE USE OF SPECIALIZED TECHNOLOGICAL EQUIPMENT AND, CERTAIN CONCLUSIONS ARE DRAWN CONCERNING THE MANUFACTURE OF ALL WELDED PANELS. ON TABLE, TWO ILLUSTRATIONS, BIBLIOGRAPHY CONTAINS SIX CITATIONS.

UNCLASSIFIED

USSR

UDC 541.183

TIKHOMIROV, I. A., TIKHONOV, G. S., and GOFMAN, E. R., Tomsk Polytechnical  
Institute

"Swelling of the Cation Exchange Resin KU-2 in Alcohols and Aqueous Alcohol  
Solutions"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 5, May 72, pp 1202-1204

Abstract: It has been shown that addition of alcohol to water, with a concentration of less than 20 g per 100 g water, had no effect on the degree of swelling of ion exchange resin, since this insignificant content of alcohol in water changed but little its dielectric permeability. On the other hand, swelling of the ion exchange resin in alcohols and in alcohols to which small quantities of water were added differed considerably from the cation exchange resin swelling in water. This is explained by the fact that even though with low solubility of water in alcohol the dielectric permeability is changed, the degree of this change is too small to affect the swelling. In case of alcohols soluble in water, the degree of cation exchange resin swelling decreases sharply with increasing concentration of the alcohol.

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USSR

UDC 612.822.3:612.821

GOFMAN, S. S., Chair of Physiology and Work Psychology, Institute of the Economy, Sverdlovsk

"Correlation Analysis of Brain Bioelectrical Activity During Mental Work"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 11, 1972, pp 9-11

Abstract: Bioelectrical activity was derived from the speech center of the left hemisphere and symmetrical region of the right hemisphere in truck dispatchers and two groups of students, one while listening to a lecture in class, the other while taking an examination. The EEG was found to change little in the dispatchers or in the students listening to the lecture, but there were pronounced changes in the students taking an examination, mainly the appearance of high-amplitude slow waves. Cross-correlation analysis of segments of the EEG showed an intensification of significant correlations of the biopotentials between Broca's speech center in the left hemisphere and in the corresponding region of the right hemisphere in all the groups studied. However, while it increased gradually in the dispatchers from the beginning of the work shift to the period of peak activity, it increased in the exam-taking students from the very start. Intensification of the bioelectrical activity of the right hemisphere shows that it too actively participates in speech.

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USSR

UDC: 612.822.3-06:612.821.33/.34

GOFMAN, S. S., and FREYDIN, YA. V., Chair of Industrial Physiology and Psychology, Institute of the National Economy, and Laboratory of Medical Radioelectronics, Scientific Research Institute of Labor Hygiene and Occupational Diseases, Sverdlovsk

"Multichannel Radioelectroencephalographic Study of Man During Nervous and Emotional Stress"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 11, Nov 70, pp 19-22

Abstract: A Radiotelemetric study was conducted to determine the bioelectrical activity of the brain in 10 students taking an examination. The results revealed an increase in slow activity instead of the expected depression. Slow high-amplitude oscillations predominated, especially in the occipital regions of one or both hemispheres, occasionally alternating with low-amplitude oscillations. While the students were thinking what to write, and with the eyes temporarily closed, more or less pronounced alpha activity was recorded in all of the leads.

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USSR

GOFMAN, S. S., and FREYDIN, YA. V., Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 70, No 11, Nov 70, pp 19-22

The importance of stress is shown by the fact that these EKG shifts did not take place while the students were attending class prior to the examination period. The appearance of the slow rhythm is regarded as an indication of increased activity of the cortical and subcortical elements, rather than of predominance of the inhibitory processes.

2/2

USSR

UDC 621.396.67.001

TERESHIN, O. N., GOFMAN, V. G., KUZNETSOV, L. N.

"Synthesis of a Relief Impedance Axial Radiation Antenna with a Radiation Pattern of Special Shape"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of the Moscow Electrotechnical Communications Institute), 1970, vyp. 1, pp 130-136 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B2)

Translation: Beginning with representation of the field near the antenna with a modulated phase velocity in the form of the sum of surface waves with different delays propagated at various angles to the antenna axis (see RZh-Radiotekhnika, 1970, 1B46), a method of synthesis of an antenna with a sectoral radiation pattern is discussed. The parameters of an endon rod impedance antenna and an antenna based on a rod delay structure are calculated. There is one illustration and a three-entry bibliography.

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- 23 -

USSR

UDC 621.396.677.32(088.8)

TERESHIN, O. N., GOFMAN, V. G.

"Impedance Antenna"

USSR Author's Certificate No 240044, Filed 1 Jul 67, Published 28 Jan 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B63P)

Translation: The proposed impedance antenna is executed in the form of coaxial metallic discs of variable diameter separated by grooves. In order to reduce the overall dimensions, the diameters of the mentioned discs and the depth of the grooves between them vary along the antenna according to a wave periodic law. There is one illustration.

1/1

AA0040643

Gofman, Ya. A. UR 0482

1-76

Soviet Inventions Illustrated, Section I Chemical, Derwent,

241193 GALVANOPLASTIC PRODUCTION of complex-shape articles from cadmium, using permanent aluminium moulds preliminarily subjected to thermal treatment and anodised in sulphuric acid, is improved in that the anodised moulds are copper-plated in a sulphuric acid electrolyte, then the copper deposit is removed and the cadmium-plating is carried out in an ammonium fluoborate electrolyte. In an example, parts of an aluminium mould, which are not wanted to be cadmium-coated, are protected by a gelatine emulsion coating; then the mould is anodised in 4N  $H_2SO_4$  at 1 A/dm.<sup>2</sup> (18°C), and copper-plated in an electrolyte containing  $CuSO_4$  (250g./l.),  $H_2SO_4$  (70 g./l.) and alcohol (5 ml./l.) at 4A/dm.<sup>2</sup> to a thickness of 0.05-0.08 mm. Subsequently, the copper deposit is removed from the mould, but the copper remaining in the pores and the oxide film facilitates the separation of the cadmium article from the mould. The cadmium-plating is carried out

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19750218



AA0040643

AUTHORS: Gofman, Ya. A.; Kutyukov, G. T.; and Antonova, N. S.

in a solution containing (in g/l.):  $\text{Cd}(\text{BF}_4)_2$  70-75,  $\text{NH}_4\text{BF}_4$  150-170, OP-7 (surface active agent 5-7, ammonium 2-naphthyl-5-sulphonate 0.5-1.0; the pH is 4.5-5.5, and the current density 1-1.5A/dm<sup>2</sup>. After the separation of the cadmium article (adhesion strength does not exceed 10g./cm<sup>2</sup>), the mould can be utilised again, without repeating the preliminary operations.

30.3.67 as 1145504/22-1. YA.A.GOFMAN et alia.  
NOVOSIBIRSK ELECTROTECHNICAL INST. (20.8.69) Bul 13/  
1.4.69. Class 48a. Int.Cl. C 23b.

*2/2* Novosibirskiy Elektotekhnicheskiy Institut

**19750219**

1/2 017 UNCLASSIFIED PROCESSING DATE--18SEP70  
TITLE--THE NATURE OF INTRANUCLEAR HERPETIC INCLUSIONS -U-

AUTHOR--(03)-BIKBULATOV, R.M., GOFMAN, YU.P., CHIBISOVA, V.A.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 199-204

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTRON MICROSCOPY, VIRUS, DNA, RNA, GLYCOGEN, ACID  
PHOSPHATASE, LIPID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/0733

STEP NO--UR/0402/70/000/002/0199/0204

CIRC ACCESSION NO--AP0108939

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0108939

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELECTRON MICROSCOPIC, CYTOCHEMICAL AND IMMUNOFLUORESCENT EXAMINATION OF SPECIFIC HERPETIC INTRANUCLEAR INCLUSIONS WAS CARRIED OUT. IT WAS SHOWN THAT CLASSICAL INCLUSIONS OF THE A TYPE DESCRIBED BY COWDRI DID NOT TAKE PART IN SYNTHESIS OR FORMATION OF VIRUS PARTICLES. THEY CONTAINED DNA, BUT NO RNA, GLYCOGEN, LIPIDS OR ACID PHOSPHATASE COULD BE FOUND IN THEM. INCLUSION OF THE B TYPE CONSISTED OF FRAGMENTED NUCLEOLUS MATERIAL WHICH HAD CHANGED ITS TINCTORIAL PROPERTIES UNDER THE INFLUENCE OF INFECTION. DIFFERENT MECHANISMS EXPLAINING THE NATURE OF SPECIFIC HERPETIC INTRANUCLEAR INCLUSIONS ARE SUGGESTED.

UNCLASSIFIED

USSR

UDC: 51

~~GOFMARK, A. S.~~

"Two-Stage Problems of Stochastic Programming, Assuming Random Elements of the Matrix (A/s)"

Nauch. zap. Tashkent. in-t nar. kh-va (Scientific Notes. Tashkent Institute of the National Economy), 1971, vyp. 60, pp 3-19 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V552)

[No abstract]

1/1

USSR

UDC 512.25/.26+519.3:330.115

GOFMARK, A. S.

"Problems of Stochastic Programming with Probabilistic Limitations When the Coefficients of Matrix A are Random"

Nauch. Zap. Tashkent. In-t Nar. Kh-va [Scientific Writings of Tashkent Institute], No 34, 1970, pp 77-87, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V694).

NO ABSTRACT.

1 / 1

USSR

UDC 512.25/.26+519.3:330.115

GOFMARK, A. S.

"Problems of Stochastic Programming with Penalty Estimates with Random Coefficients of Matrix A"

Nauch. Zap. Tashkent. In-t Nar. Kh-va [Scientific Writings of Tashkent Institute], No 34, 1970, pp 68-76, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V695).

NO ABSTRACT.

1/1

- 31 -

USSR

UDC 615.285.7.015.4:611-013

GOFMEKLER, V. A., and TABAKOVA, S. A., Institute of General and Communal Hygiene imeni A. N. Sysin, Academy of Medical Sciences USSR, Moscow

"The Effect of Chlorophos on Embryogenesis in Rats"

Moscow, Farmakologiya i Toksikologiya, Vol 33, No 6, Nov/Dec 70, pp 735-737

Abstract: The embryotropic effect of chlorophos was studied in experiments on pregnant female rats subjected to uninterrupted inhalation intoxication with chlorophos in concentrations of 0.005, 0.02, 0.2, and 9 mg/m<sup>3</sup> during the entire gestation period (20 days). Chlorophos exerted a distinct embryotropic effect in all concentrations applied. This effect was manifested by external and internal anomalies of the embryos during their development, changes in the weight of embryo organs and of the embryo as a whole, deviations from normal of the ascorbic acid content and nucleic acids in tissues of female rats and of fetuses, and histopathological and histochemical changes in the placenta.

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USSR

UDC 621.382.535.376

GOFSHTEYN-GARDT, A.L., KOVYREVA, N.I., KOGAN, L.M., KULAGIN, L.N., KURLYAND, B.I.,  
TIN'KOV, A.P., TRUSHINA, V.YE.

"Semiconductor Light Source (Light-Emitting Diode) Of Gallium Phosphide"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their  
Application--Collection Of Works), Issue 4, Moscow, "Sov.radio," 1972, pp 3-14  
(from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B310)

Translation: The results are discussed of the development and an investigation  
of the electrical and optical characteristics of gallium phosphide red-radiation  
light-emitting diodes. The method of creation of p-n structures and the design  
of the light-emitting diode are described. The principal areas of application of  
the light-emitting diodes are considered. The devices described are characteriz-  
ed by a quantum efficiency of radiation of 0.1--1 percent. 11 ill. 1 tab. 19 ref.  
Author's abstract.

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UDC 681.3

USSR

GOGA, G. G., KUZNETSOV, B. S.

"Digital Computer Calculation of Useability of Complex Discrete Logic Devices  
Considering Structure of the Device"

Tr. Mosk. Aviats. In-ta [Works of Moscow Aviation Institute] No. 194, 1970,  
pp 169-174 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April,  
1971, Abstract No. 4 V621 by V. Mikheyev).

Translation: Useability of logic devices based on discrete elements depends functionally on the content of the information being processed, since, as studies have shown, the probability of appearance of failures when ones are stored and in the mode of switching from "one" to "zero" does not correspond to the probability of appearance of failures when zeros are stored and in switching from "zero" to "one". As a result, the estimate of reliability calculated on the basis of the  $\lambda$  coefficients, which are integral indicators, independent of the type of failure, do not correspond to the reliability of discrete circuits actually appearing in practice. It is therefore suggested that the reliability of discrete logic elements be performed considering the logic function realized by the element, the probability  $x$  of appearance of a one (of a zero  $\bar{x}=1-x$ ) signal, the probability that the one signal will be disrupted upon arrival  $\beta(0)/1$ , the probability of appearance of a 0 signal which may be taken as a one signal  $\nu(1/0)$ .

UDC 681.3

USSR

GOGA, G. G., KUZNETSOV, B. S., Tr. Mosk. Aviats. In-ta, No. 194, 1970, pp. 169-174.

as well as the probability of distortion of the values of the output signal due to failure of the logic element itself  $\beta_t(0/1)$  and  $\gamma_t(1/0)$  where  $t$  indicates the type of logic element). A program is presented, written in autocoder for the Nairi digital computer for the case of four elements with two inputs. It is stated that the method presented in this article can be easily used for the case of multiple-input logic elements.

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1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--USE OF X RAY FLUORESCENCE ANALYSIS WITH RADIOISOTOPE FOR  
DETERMINATION OF CHEMICAL COMPOSITION OF ROCK NO ORES IN MOTION -U-  
AUTHOR-(04)-PSHENICHENYY, G.A., OCHKUR, A.P., PLOTNIKOV, R.I., GOGANOV,

D.A.  
COUNTRY OF INFO--USSR

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PROCESSING DATE--16OCT70

2/2 016

CIRC ACCESSION NO--AP0105288

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTIONS ARE GIVEN OF THE DESIGN AND PERFORMANCE OF A RADIOISOTOPE X FLUORESCENCE METHOD FOR ORE SAMPLE ANALYSIS ON A CONVEYOR BELT. TESTS WERE MADE OF CONTINUOUS SAMPLE CONTROL OF TI AND ZR ON THE CONVEYER AND COMPARED WITH THE LABORATORY DATA. SOURCE OF COMBINED PRIME55 FE (5.9 KEV) AND PRIME109 CD (22 KEV) WERE USED FOR EXCITATION OF THE K SERIES OF TITANIUM (TIK SUBALPHA EQUALS 4.5 KEV) AND ZIRCONIUM (ZRK EQUALS 15.7 KEV). RESULTS OBTAINED SHOWED THE METHOD SUITABLE FOR DETERMINING THE ORE CONTENT OF ELEMENTS WITH ATOMIC NUMBER OF 20 HIGHER, WHOSE LUMINESCENCE IS SUFFICIENTLY STRONG TO PENETRATE 5 TO 10 CM THICK AIR LAYERS.

UNCLASSIFIED

USSR

UDC 669.1:621.873

GOGENKO, V. A., SHARONOV, G. YE., and GROSVAL'D, V. G.

"Devices for Weighing Metal in Steel Pouring Ladles During Extraction of a Melt From an Open Hearth Furnace"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 52-56

Translation: The design of electrotensometric devices for weighing of metal in a steel pouring ladle during extraction of the melt from an open hearth furnace is described.

The scales consist of four water-cooled dosimeters installed on the stand carrying the steel pouring ladle, an electrical attachment and a secondary instrument. The range of the device is 0 to 320 T. The error of the scale did not exceed 1.25% of the maximum full scale reading in calibration on a 600 T hydraulic press. The tensometric scales are installed on two stands.

Comparison of the results of weighing by tensometric scales with the results of calculation of the theoretical mass of the metal (by volume) was performed. The average deviation of mass from the theoretical value did not exceed the error of calibration. 2 figures; 1 table; 1 biblio. ref.

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UDC 669.1:621.873

USSR

GOGENKO, V. A., SHARONOV, G. YE., and GROSVAL'D, V. G.

"Devices for Weighing Metal in Steel Pouring Ladles During Extraction of a Melt From an Open Hearth Furnace"

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1/1

USSR

UDC: 624.074.4.04

GOGESHVILI, A.A., YARIN, L.I., Aprelevka

"Wind Load Calculations of Inflated Cylindrical Shell"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 2,  
1971, pp 17-19

Abstract: An analysis is made of tensions and deformations of an inflated shell having a shape of a portion of cylinder of a certain included angle, fixed to the ground on the ends and subject to wind pressures. The wind pressure distribution is taken from the standards. The shell is assumed to have no stiffness and to be non-stretching.

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USSR

GOGESHVILI, A.A., et al, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 2, 1971, pp 17-19

A system of equations is set up. Numerical solutions have been obtained by means of computers and correlated by empirical formulae.

It is shown that with the internal pressure equal to the maximum local external pressure the minimum hoop force occurs with the included angle of  $140^{\circ}$ , it changes little in the range of  $110^{\circ}$  to  $180^{\circ}$ .

The minimum amount of material per unit of floor area corresponds to the included angle of  $105^{\circ}$ .

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Semiconductor Technology

USSR

UDC 541.183.02 + 539.232

BAGRATISHVILI, G. D., GOGESHVILI, M. D., DZHANELIDZE, R. B.,  
CHAGELISHVILI, V. A., and KHAPATI, R. G.

"Structure and Properties of Germanium Oxide Films"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

Abstract: The authors undertook to obtain germanium oxide films during the oxidation of single-crystal germanium with gaseous oxygen and to compare them with  $\text{GeO}_2$  films obtained by other methods, as well as to study their structure and properties. Specimens of  $\text{GeO}_2$  films were obtained by the following methods: 1) pyrolytic decomposition of tetraethoxygermanium, 2) oxidation of Ge in an oxygen stream and 3) oxidation of germanium after gas etching in  $\text{O}_2$  in an oxygen atmosphere in a closed system. The resultant  $\text{GeO}_2$  films were studied by means of IR spectra and by electron

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USSR

BAGRATISHVILI, G. D., et al., Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

diffraction. It was found that different crystallographic modifications of  $\text{GeO}_2$  are obtained according to the experimental conditions. An amorphous modification of  $\text{GeO}_2$  results from decomposition of tetraethoxygermanium, hexagonal from oxidation in an oxygen stream, tetragonal from oxidation in a closed system with preliminary gas etching with oxygen. The resultant crystallographic modifications are characterized by different work function and resistivity values, with these parameters increasing as follows: amorphous < hexagonal < tetragonal, coinciding with the direction of material density increase. The effect of water vapors at various temperatures on the structure and properties of  $\text{GeO}_2$  was studied to find whether the transition of different modifications from one to the other is possible. IR spectra indicate that with the treatment

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BAGRATISHVILI, G. D., et al., Doklady Akademii Nauk SSSR, Vol 196,  
No 2, 1971, pp 342-344

of amorphous  $\text{GeO}_2$  in a stream of  $\text{H}_2\text{O} + \text{Ar}$  the transition to a  
hexagonal modification begins at comparatively low temperatures.  
Treatment of tetragonal  $\text{GeO}_2$  in a stream of  $\text{H}_2\text{O} + \text{Ar}$  results in  
its irreversible transition to a hexagonal modification.

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